Space Weather Forecast

Issued on Monday 21 October 2024 at 01:11 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor geomagnetic storms (G1) peaking into new UTC working week. Initially reducing chance of Minor radio blackouts (R1), rising later in period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Low. There are eight main sunspot regions on the disc. The recent most active group has now crossed the western limb. Meanwhile, two new minor regions were numbered in the far east. Changes in other groups were generally slow.

No Earth-directed CMEs (Coronal Mass Ejections) were observed in available imagery..

Solar Wind / Geomagnetic Activity: Solar winds speeds declined steadily from a peak of 450km/s to around 37km/s by the period's end. The interplanetary magnetic field, Bt, was highest to start the 24 hours, gradually decreasing over the ensuing day and remaining Weak. The important north-south component, Bz, was Weak throughout and largely neutral. Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity initially but a chance of isolated Moderate flares. A steady increase in activity looks likely into the new UTC working week, with the possible return of several sunspot regions. Activity is expected to increase from day 2 (22 Oct) onward to become generally Moderate, with occasional Moderate flares likely, and an increased chance of isolated Strong flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs currently forecast. Solar winds currently waning but a connection to faster solar winds is expected perhaps from later on day 1 (21 Oct), but more likely on day 2 (22 Oct). This is likely to bring Active intervals with a Chance of Minor geomagnetic storm G1 conditions at peak into the new UTC working week, before activity declines into days 3 and 4 (23-24 Oct), with activity otherwise generally Quiet to Unsettled.

Energetic Particles / Solar Radiation: No solar radiation storms are likely.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	50	20	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	30	40	60	60
Very Active	R3-R5 (X Class)	No	5	5	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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